Information Technology Plan

North Dakota State University
2007-2009

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In This Document

Additional Documents

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2. IT Overview

A. Campus IT Staff

Most research institutions implement information technology using a combination of centralized and decentralized operations. NDSU is no exception. Information Technology Services (ITS) is led by the Vice Provost and Chief Information Officer who reports to the Provost and Vice President of Academic Affairs. ITS provides a wide array of services to NDSU and to other NDUS institutions. Telecommunications, led by

an Associate Director of Facilities Management, provides oversight, coordination, and leadership of the University's telecommunications transport infrastructure, switching systems, CATV systems, card access, and other related applications, as well as 24-hour operational support. Distributed information technology support is also accomplished in departments either by designated IT staff or other staff given specific IT responsibilities. ITS has organized a group called the IT Technical Professionals to enhance communication and coordination among all those on campus with IT responsibilities.

B. Network and Computing Facilities

The campus is completely networked with all University classrooms, all academic buildings, and every residence hall room connected to the campus network. The campus utilizes an extensive fiber optic network and building wiring to provide Ethernet connections (most are switched 10/100 mbps). A state-of-the-art wireless LAN has been deployed in many buildings with a plan to add more over the next few years.

Campus computing facilities have changed over the years from one high-speed mainframe to hundreds of specialized and general servers. Specialized systems are provided for intensive statistical work and high-performance computing. Public computer laboratories with some 400 networked microcomputers are on an aggressive three-year replacement cycle to make the best systems available for students and include 45 networked printers under control of a print-management system. The public clusters make a wide range of popular software available in addition to specialized software for class use. Totally instrumented classrooms may be reserved by faculty for the semester or for specific projects.

C. IT Services

Centrally provided services include e-mail, calendaring, Web servers, network file and print services, database servers, storage area network, and backup services. The ITS Technology Learning Center provides specialized multimedia support for students, faculty, and staff. ITS Student Technology Services is a work-based learning program staffed and managed by students. ITS also provides desktop support services, statistical consulting, and software licensing.

ITS provides a Help Desk operation with extended hours. The Help Desk provides telephone, Web-based, e-mail, and walk-in support for both NDSU and, in collaboration with UND, for the University system including ConnectND. ITS provides a wide variety of other services to the University System such as identification, authentication, and authorization; e-mail hosting and lists; online calendar; IT security coordination and leadership; software licensing negotiation and management; and Internet2 support.

D. Instructional Technology

Many faculty have embraced new technologies as they have become available. A Blackboard learning management system as well as custom designed Web sites are used to facilitate instruction. Many faculty use Personal Response Systems (PRS) in their classes as a way to enhance learning. NDSU has been a leader in the use of interactive videoconferencing and has been a leader in the annual international Megaconference and Megaconference Jr. used to showcase the latest applications of the technology. The NDSU Center for High Performance Computing includes an advanced distributed memory computing cluster, high-performance shared memory server, and database server as well as software and support services.

Recent trends include a move to equip more classrooms with dedicated technology such as computers, projectors, document cameras, and control systems; increased use of wireless computing in public areas; investigation of new technologies such as podcasting; and leveraging of existing systems such as Blackboard through the Academic Suite to integrate file services and e-commerce. Due to flat funding, some services, such as the dial-up modem pool, have had to be retired to fund new initiatives such as wireless service.

E. NDSU IT Committee System

NDSU is in the process of establishing a new IT committee system built around IT planning, policy development, and program review that will ensure broad institutional representation and communication. The system was endorsed by the University Senate in April 2006.

F. Infrastructure Funding

A serious problem facing NDSU and other campuses is inadequate funding for upgrades of high-speed transport systems such as newer leading edge fiber optics and infrastructure, wireless applications, and building wiring and core network equipment. The risks of this large amount of deferred maintenance include increased failures, lack of available support and replacements, competitive disadvantage, and the inability to take advantage of increasing available network speeds. Network upgrades will be critical to support the convergence of data, voice, and video on one network.

3. Technology Goals and Objectives

A. NDUS Mission, Vision, and Strategic Plan

NDSU is not only an institution in the North Dakota University System but ITS provides a wide range of IT services to the system office and other institutions. The most recent University System strategic plan including the vision and mission statements is available at http://www.ndus.nodak.edu/reports/details.asp?id=463 .

B. NDSU Mission

The NDSU mission statement is:

> With energy and momentum, North Dakota State University addresses the needs and aspirations of people in a changing world by building on our land-grant foundation. *(Approved: State Board of Higher Education Jan. 15, 2004)*

C. NDSU Vision

The NDSU vision statement is:

> We envision a vibrant university that will be globally identified as a contemporary metropolitan land-grant institution.
> *(Approved: Staff Senate, April 14, 2004; Student Senate, April 18, 2004; and University Senate, April 19, 2004)*

D. NDSU's Objectives for FY07

The following objectives were posted by NDSU President Joseph Chapman in June, 2006:

- **Grow federal dollars for university research.**
    - Provide resources and improve research infrastructure to increase competitiveness for merit-based peer-reviewed research grants.
    - Advance the research mission of the university by identifying new opportunities through federal government initiatives.

- **Expand the region's economy through faculty and student research capacity.**
    - Facilitate start-up business and entrepreneurial activity.
    - Facilitate the transfer of technologies developed at NDSU to the private sector.

- **Provide better start-up packages to attract and retain the best faculty and staff.**
  - Continue to adjust faculty and staff compensation to midpoint of peers based on performance, internal equity, and marketplace.
  - Seek most qualified and diverse faculty and staff by developing competitive compensation and start-up packages.
  - Maintain / foster developmental grants for faculty and staff.
  - Increase numbers of graduate assistants, post-doctoral fellows, and visiting faculty.

- **Student research opportunities are vital to achieving NDSU's goals of making students paramount and in leveraging support.**
  - Continue to improve the student learning experience including enhancing undergraduate research opportunities; incorporating experiential learning into academic programs, exposing student to advances in technology.
  - Provide opportunities for graduate and undergraduate students to gain first-hand experience with business and industry.

- **NDSU is engaged at all levels of the PeopleSoft implementation (***this objective has been extended for an additional year***).**
  - NDSU is committed to a successful implementation of ConnectND in all facets: PeopleSoft as well as ancillary interfaces.

- **As NDSU grows, we must continually assess all areas for adequacy in resources and infrastructure.**
  - Continue to examine current programs for adequacy in resources and infrastructure.
  - Maintain people infrastructure balance in terms of student-to faculty, student-to-staff, and faculty-to-staff ratios as student levels grow.

- **Compete for, and execute, major interdisciplinary research programs.**
  - Increase the creation of multi-investigator and inter-disciplinary research centers at NDSU.
  - Faculty groups will continue to work on obtaining funding for multi-investigator and interdisciplinary research and educational programs and create new centers.

- **Continue our capital campaign. Work to increase collaboration between the campus and the Foundation to continue to conduct outreach events in the state to build relationships between ND citizens and NDSU.**
  - Expand NDSU's philanthropic base.
  - Increase the number of named or endowed professorships.
  - Continue Capital Campaign to fund new Business Building.

- **NDSU is committed to the Roundtable and in recognition of the support and flexibility given us, will strive to continue to strengthen our communication and working relationships with state officials, including the Governor and members of the Legislative Assembly, members of the State Board of Higher Education, the Congressional delegation, the other campus presidents, and members of K-12 and private sector.**
  - Through our growth, we are taking a leading role in helping to grow North Dakota. This is the growth our state's elected leadership hoped to achieve when they instituted the Roundtable on Higher Education with its greater flexibility to make local decisions couples with accountability for those outcomes. (President Chapman's State of the University Address, October 2005).
  - As NDSU prepares for its February 2006 re-accreditation visit, we will use the vision provided within the Roundtable Cornerstones to ground our strategy.

E. NDSU President's Information Technology Priorities

A set of IT priorities and goals for NDSU were adopted in 2002. Several initiatives and projects have been identified. Following each goal are comments on related past, current, or planned activities.

Goal #1 – "Sustain the Vision":   Maintain base funding levels for NDSU's academic, research, telephone, networking, administrative, and plant control activities (as outlined in NDSU's 2000 IT Plan) in support of NDSU's telecommunications infrastructures, IT operations, and collaboration and cooperation efforts.

ITS reviews equipment spending on an annual basis to allow for changing technology and to make the most of the funding available. In light of flat funding over the past few biennia, new technologies have been implemented at the expense of others. For example, the dial-up modem pool was retired, and funds were used to help implement wireless networking on campus. We have tried to keep modern equipment in the student labs by using a three-year replacement cycle. ITS has repurposed open staff positions as a way to fill new needs without additional funding.

Devices used for data and storage networks have a finite life expectancy. After the 2000 water event, NDSU established a second data center in the Research 1 building with older used equipment. This equipment must be replaced to maintain the reliability and provide the performance needed.

Goal #2 – "Sustain the Vision":   Examine current information technology programs for adequacy in resources and infrastructure.

A critical need is to fund campus network infrastructure upgrades. Current fiber optics and building data networks are limited in capacity and capability. Higher speeds are needed to support growing use, future initiatives such as Voice over IP (VoIP)

telephony, and access to higher speed regional and international networks. Investments in fiber optics and network infrastructure will last for many years.

Goal #3 – "Extend Economic Development":   Provide IT resources in support of efforts to increase federal and private research funding.

Initiatives such as the Center for High Performance Computing (CHPC), Internet2, and future initiatives such as the Northern Tier high-speed networking connection provide critical capabilities needed to compete for grants, support economic development, etc.

Goal #4 – "Provide Educational Excellence":   Furnish information technology resources in support of efforts to expand doctoral programs in areas of strength.

Resources such as the CHPC, research network connections (Internet2 and Northern Tier), and specialized library databases all support research.

Goal #5 – " Provide Education Excellence":   Deliver information technology resources in support of real world research experience and educational opportunities for NDSU faculty, staff, and students."

ITS is in the process of upgrading and extending the Blackboard learning management system to enhance its value in education and organizational support.

Goal #6 – "Provide Accessible System":   Implement Enterprise Resource Planning (ERP) System, which will replace the 21-year-old Higher Education Computing Network (HECN) administrative information system, commonly known as CICS.

In addition to work required to implement and take advantage of the PeopleSoft systems, much work remains to be done to develop a standard interface with other systems and to develop ancillary systems. ITS plans to update the identification, authentication, and authorization system it uses to allow it to be more responsive and accessible to current needs. A new Student Health Information System is proposed, potentially to be shared by NDSU, UND, and other schools.

Goal #7 – "Collaborate and Cooperate": Leverage IT resources through strategic partnerships within NDSU, the NDUS, State of North Dakota, nationally, and globally.

NDSU and UND have been members of the advanced Internet2 research network for the past decade. NDSU has been a leader in facilitating and utilizing access to Internet2 for the other NDUS institutions, K-12 schools, and other entities throughout the state. The Northern Tier network will provide higher speeds and more opportunities for national and international collaboration.

F. Spending on IT Equipment Greater than $5,000

None of the equipment funding for equipment over $5,000 will come from general funds but will be funded by tuition or local funds. Given changes in technology and the fact that higher education institutions are not appropriated specific equipment funds, it is difficult if not impossible to itemize equipment spending for IT equipment greater than $5,000 three years in advance.

Based on previous spending, we anticipate the amount of spending shown for replacement/updating of equipment in our campus network. Items that are included are high-end router(s), switch(es), replacement high-end special purpose computer systems, storage area network components, communication systems, backup systems, CAD equipment, boiler control system equipment, and remote telephone switch equipment.

G. Projects, Priorities, and Funding

Submitted with this plan are the projects listed below that are over and above the funding listed in the costs to continue reflected in the "IT Infrastructure" spreadsheet.

The NDSU President and Cabinet will make the decisions on whether or not to fund the projects based on the University budget request. However, the Cabinet had not yet acted on the budget requests at the time this plan was submitted to the NDUS.

The projects are listed in two groups: those funded in whole or in part by appropriated funds and those funded entirely by other funds (e.g., special student fees or telephone income). The listing in each table is in order by the group submitting (ITS, Student Affairs, Telecom.).

Please note that the request for the fiber optic infrastructure upgrade to single mode fiber was ranked the first priority by both Telecom and ITS.

G1. Projects Funded in Whole or in Part by Appropriated Funds

Project	Overall Priority	Unit Priority	Total Funds	Approp. Funds*	Other Funds	Budgeted Funds	Notes
Single Mode Fiber		ITS&Tel 1	$250,000	$250,000			1st priority for ITS and Telecom.
In-Building Infrastructure Upgrades		ITS 2	$400,000	$400,000			Continuing project.
R1 Hot Site Computer Room Services		ITS 3	$300,000	$300,000			
TRIAD – Fault Tolerant, High-Performance Backbone		ITS 4	$1,100,000	$1,100,000			$900,000 plus $200,000/year operating
Card Access Security System Upgrade		Tel 2	$300,000	$150,000	$150,000		Phase 1 – Other funds, Phase 2 – Approp.
Video Surveillance System		Tel 3	$80,000	$80,000			Initial funding app., then transform to cost center.

G2. Projects Funded in Whole by Other Funds

Project	Overall Priority	Unit Priority	Total Funds	Approp. Funds*	Other Funds	Budgeted Funds	Notes
Student Health Information System		SA 1	$250,000-$500,000		$250,000-$500,000		Funded from student health service fee.
Modular Messaging - Telecom. Audix Replacement		Tel 4	$162,867		$162,867		Support for current system ends after 2008. Funded by telecom local fund.
Telecom. Switch Cabinet Upgrade		Tel 5	$750,000		$750,000		Funded by telecom local fund.

* See "Spending on IT Equipment Greater than $5,000" above. General funds are not used for equipment over $5,000.

Campus Name	North Dakota State University			
Project	NDSU IT Infrastructure Budget (Costs to continue)			
Number of IT FTE's	80.4			
Number of vacant IT FTE's	0			

Account Code	Account Code Desc	05-07 Biennium	07-09 Request	09-11 Estimate
510000	Salaries and Wages	8,089,285	8,462,260	8,856,911
516000	Benefits	2,265,000	2,369,432	2,479,935
611000	Professional Development	119,726	124,071	128,573
521000	Travel (As relates to Professional Dev.)	171,778	178,011	184,471
602000	IT Telephone	5,255,584	5,446,298	5,643,934
531000	IT Software/Supplies	3,953,948	4,097,428	4,246,116
581035, 581040, 581045, 591070, 621230, 621235, 623090	IT Contractual Services and Repairs	2,952,087	3,059,212	3,170,225
551000	IT Equipment under $5000	3,699,501	3,833,749	3,972,868
693000	IT Equipment $5000 and over*	343,819	356,295	369,224 *
		$ 26,850,727	$ 27,926,757	$ 29,052,256

Funding Source	Funding Source Desc			
Grants/Contracts	Grants/Contracts	2,197,563	2,288,186	2,383,210
General Fund & Tuition/Other	General Fund & Tuition/Other**	14,734,891	15,298,694	15,885,942 **
Other Current Funds	Other Current Funds	9,918,272	10,339,877	10,783,104
		$ 26,850,727	$ 27,926,757	$ 29,052,256

* NDSU plans to purchase equipment items > $5,000 from tuition funds and not general funds.
**Includes both general fund and tuition appropriation

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NDUS Project Business Case

Project Name: Telecommunications Switch Cabinet Upgrade

Name of Contact or Submitter: Joan Chapek

Institution: North Dakota State University

Business Unit/Program Area: Telecommunications/Business and Finance

Type of Project: Major enhancement/upgrade

Date: June 12, 2006

Version: 1

Project Description:

Maintain Telecommunications switch at supported equipment levels.

Project Priority:

Telecommunications/Business and Finance Priority: 5

Business Need/Problem:

The current NDSU Telecommunications switching systems have dedicated connections.
To keep pace with the manufacturer's direction for this equipment, cabinets will need to
be converted to Internet Protocol (IP) connectivity.

Solution:

Telecommunications cabinets will have to be IP connected. IP connect will require IP
infrastructure support for Voice Over IP (VoIP). Cabinet migrations, from multi-carrier
connect (MCC) to G650 Gateways, will be necessary in the future to preserve current
switching infrastructure and capital investments.

Consistency/Fit with Organization's Mission:

As NDSU grows, we must continually assess all areas for adequacy in resources and infrastructure.

Anticipated Benefits:

This cabinet upgrade will support the growing demands of the campus and for future initiatives.

Impact of Not Implementing the Project:

AVAYA no longer sells MCC cabinets, and support can end any time after 2009.

Project Budget:

A. Funding Source(s): Telecommunications Repair and Replacement $750,000
B. Expense Account Codes to be included are:
    i.   591100 Capitalized Repairs

Project Risks:

None.

NDUS Project Business Case

Project Name: NDSU TRIAD – Fault-Tolerant, High-Performance Backbone

Name of Contact or Submitter: Dr. Thomas Moberg and Marty Hoag

Institution: North Dakota State University

Business Unit/Program Area: VPAA / Information Technology Services

Type of Project:
  Major enhancement/upgrade

Date: June 13, 2006

Version: 06/16/2006 16:33

Project Description:
Briefly describe the Project Objectives

A network backbone upgrade (nicknamed TRIAD) that includes redundant physical
connections, three redundant core networking equipment locations (IACC, Dolve Hall,
and Research One), and 10 Gbps speeds (versus today's 1 Gbps speeds).

Project Priority:
Describe the priority this project has related to other projects you are submitting

Ranked 4th among the ITS infrastructure requests.

Business Need/Problem:
*Briefly describe the **Need** or **Problem** driving the proposed project and the
identification of the Customers and anticipated Consumers of the project's product*

The consequences of a major network failure are great enough that steps should be taken
to further reduce the possibility of a failure. Beyond the business continuity needs of the
University, capacity planning and performance are also critical if the network is to be
able to support the continued growth in bandwidth consumption as well as future
activities such as voice and video convergence.

Solution:
Briefly describe the product of the project that would resolve the Business Need or Problem.

The ITS networking group has created a network backbone design (nicknamed TRIAD) that includes redundant physical connections, three redundant core networking equipment locations (IACC, Dolve Hall, and Research One), and 10 Gbps speeds (versus today's 1 Gbps speeds).

Consistency/Fit with Organization's Mission:
Describe how the project is consistent with the agency's mission and/or strategic plan. Please provide rationale if it is not.

This project is supported primarily by goals for adequacy in resources and infrastructure (#2), as well as support of efforts to increase federal funding and private research funding (#3), expanding doctoral programs (#4), and provide education excellence (#5).

Anticipated Benefits:
*List all **Anticipated Benefits** resulting directly from the project. Specify the ways there will be measurable improvement of new capabilities?*

This design protects against cabling faults, equipment faults, power failures, and even the loss of an entire building while increasing the backbone capacity of the network by a factor of ten. This request is to implement the new design.

Impact of Not Implementing the Project:
Briefly explain the impacts of not implementing this project. If not implemented, what are the impacts on the organization? If not implemented, what are the impacts on other projects, systems, and/or business processes. What benefits will be missed by not doing this project?

The entire campus network will remain vulnerable to loss of services in a single building (IACC), major portions will be vulnerable to cable cuts or power outages. Loss of the network could mean loss of campus environmental controls, security systems, and transaction system access as well as computer access, Voice over IP, and video conferencing.

Project Budget:

*Provide a **Budget** for the project using the format below. Include any special sources for project funding. Are there grants that will be applied for? Are federal funds available? Is a charge-back to the Customers planned? For example, the project may be funded by a specific line item in the budget.*

Project Budget Format:

The implementation cost is $900,000. In addition there will be $200,000 annual operating costs.

    A. Funding Source(s): Appropriated funds (not general funds, e.g., tuition)
    B. Expense Account Codes to be included are:
           693000 IT Equipment $5000 and over
    C. Project costs not reported in the above IT related account codes (include in-kind costs). None.

Project Risks:

Identify any risks associated with implementing this project and explain how the risks will be mitigated.

Technological risk – there is always a risk that IT infrastructure will be made obsolete by newer technologies. This will be mitigated by selection of the appropriate standards at the time of installation.

Project risk – the project will be led by experienced ITS Network Services staff with a proven track record in project management and successful completion.

NDUS Project Business Case

Project Name: Video Surveillance System

Name of Contact or Submitter: Joan Chapek

Institution: North Dakota State University

Business Unit/Program Area: Telecommunications/Business and Finance

Type of Project: New Initiative

Date: June 12, 2006

Version: 1

Project Description:

Installation of a Video Surveillance System to provide real time and recorded digital video images at identified campus locations.

Project Priority:

Telecommunications/Business and Finance Priority: 3 (Tied to Card Access Priority 2)

Business Need/Problem:

Areas of the NDSU campus have been identified as requiring video surveillance for safety and audit purposes. There is not currently a system to address this need.

Solution:

Install a comprehensive centralized Video Surveillance System.

Consistency/Fit with Organization's Mission:

As NDSU grows, we must continually assess all areas for adequacy in resources and infrastructure.

Anticipated Benefits:

Real time and recorded digital video at identified locations can be provided as required.

Impact of Not Implementing the Project:

The requirement that specific campus locations be monitored by video surveillance to meet safety and audit needs will not be met.

Project Budget:

A. Funding Source(s): University Appropriations initially and then transform to cost center $80,000
B. Expense Account Codes to be included are:
   i.   591100 Capitalized Repairs

Project Risks:

None.

NDUS Project Business Case

Project Name: Card Access Security System Upgrade

Name of Contact or Submitter: Joan Chapek

Institution: North Dakota State University

Business Unit/Program Area: Telecommunications/Business and Finance

Type of Project: Major enhancement/upgrade

Date: June 12, 2006

Version: 1

Project Description:

Upgrade card access security system to web enabled application.

Project Priority:

Telecommunications/Business and Finance Priority: 2

Business Need/Problem:

The current card access system is not web enabled. An upgraded, non-proprietary system that is web enabled, would allow better user access and system administration.

Solution:

A system upgrade will enable remote user and administrator access. A non-proprietary system will reduce overall equipment and hardware costs.

Consistency/Fit with Organization's Mission:

As NDSU grows, we must continually assess all areas for adequacy in resources and infrastructure.

Anticipated Benefits:

This upgrade will support the growing demands of the campus and future initiatives. New system software enables a video alarm and verification feature as well as biometric capabilities.

Impact of Not Implementing the Project:

The cost of adding doors to the existing system will continue to increase. In addition, user administration of the system from remote sites is impossible. There is a potential of compromised security and not meeting audit recommendations.

Project Budget:

    A. Funding Source(s):

        Phase I - System Upgrade and 3-5 Building Applications
        Telecommunications/Card Access Repair and Replacement $150,000

        Phase II - Forklift Change out of existing building controllers
        University Appropriations $150,000

    B. Expense Account Codes to be included are:
        i.   591100 Capitalized Repairs

Project Risks:

None.

DRAFT

NDUS Project Business Case

Project Name: NDSU Hot Site Computer Room Services

Name of Contact or Submitter: Dr. Thomas Moberg and Marty Hoag

Institution: North Dakota State University

Business Unit/Program Area: VPAA / Information Technology Services

Type of Project:
Major enhancement/upgrade (equipment refresh)

Date: June 13, 2006

Version: 06/16/2006 16:34

Project Description:
Briefly describe the Project Objectives

Replace the obsolete Ethernet switch and fiber channel equipment in the Research One computer room with current equipment.

Project Priority:
Describe the priority this project has related to other projects you are submitting

Ranked 3rd among the ITS infrastructure requests

Business Need/Problem:
*Briefly describe the **Need** or **Problem** driving the proposed project and the identification of the Customers and anticipated Consumers of the project's product*

After the "water event" of 2000 that resulted in temporary loss of electrical services for the IACC building, ITS began developing a "hot site" capability for business continuity purposes. The construction of Research One in the NDSU Research Park provided an opportunity to equip a second computer room similar to the one in the IACC. In order to get the computer room into service, ITS installed some older, used Ethernet and fiber channel networking equipment. That equipment is now long past its expected refresh date as well as being technically inferior to equipment being used in the IACC computer

room.   In order to maintain the viability of the Research One computer room as a "hot site" for backup and security purposes, the networking equipment needs to updated.

Solution:
Briefly describe the product of the project that would resolve the Business Need or Problem.

Replace the obsolete Ethernet switch and fiber channel equipment in the Research One computer room with current equipment compatible with similar devices in the IACC (central computer room).

Consistency/Fit with Organization's Mission:
Describe how the project is consistent with the agency's mission and/or strategic plan. Please provide rationale if it is not.

Although this is a fairly simple equipment refresh, it is closely tied with Goal 2 in sustaining the adequacy in resources and infrastructure.

Anticipated Benefits:
*List all **Anticipated Benefits** resulting directly from the project. Specify the ways there will be measurable improvement of new capabilities?*

Refresh of the equipment continue the viability of using the Research One computer room for a hot site and remote backup. In addition, the equipment will enhance the capabilities of the equipment for the Center for High Performance Computing (CHPC). Maintenance and operational costs will be reduced because the equipment will be more current and it will be compatible with other similar equipment on campus.

Impact of Not Implementing the Project:
Briefly explain the impacts of not implementing this project. If not implemented, what are the impacts on the organization? If not implemented, what are the impacts on other projects, systems, and/or business processes. What benefits will be missed by not doing this project?

Failure to replace the equipment will mean increased risks of failure, less opportunity to use the site as a hot site, and will negatively impact the operations of the CHPC systems.

Project Budget:
*Provide a **Budget** for the project using the format below. Include any special sources for project funding. Are there grants that will be applied for? Are federal funds available? Is*

a charge-back to the Customers planned? For example, the project may be funded by a specific line item in the budget.

Project Budget Format:

The total cost for the equipment is $300,000. General funds will not be used to pay for the equipment. Instead it would be funded from tuition, local, or other funds.

A. Funding Source(s): Appropriated funds (not general funds, e.g., tuition)
B. Expense Account Codes to be included are:
    693000 IT Equipment $5000 and over
C. Project costs not reported in the above IT related account codes (include in-kind costs). None.

Project Risks:
Identify any risks associated with implementing this project and explain how the risks will be mitigated.

Technological risk will be reduced by purchasing equipment similar to that already in use in the main center in the IACC building.

Project risk is small since this is an equipment refresh but will be mitigated by using experienced project leaders with a proven track record.

NDUS Project Business Case

Project Name: NDSU In-Building Infrastructure Upgrades

Name of Contact or Submitter: Dr. Thomas Moberg and Marty Hoag

Institution: North Dakota State University

Business Unit/Program Area: VPAA / Information Technology Services

Type of Project:
> Major enhancement/upgrade

Date: June 13, 2006

Version: 06/16/2006 16:33

Project Description:
Briefly describe the Project Objectives

Funding is requested to replace inside network infrastructure (e.g., wiring) in buildings on the NDSU campus over the next two bienniums.

Project Priority:
Describe the priority this project has related to other projects you are submitting

Ranked 2nd among the ITS infrastructure requests

Business Need/Problem:
*Briefly describe the **Need** or **Problem** driving the proposed project and the identification of the Customers and anticipated Consumers of the project's product*

Data, voice, and video transmission depends on wiring inside buildings as well as between them. The wiring inside NDSU's buildings is much more varied because of the ad-hoc way in which the campus network has grown over the years. Most of this cabling is copper and, like fiber optics, the technology has changed significantly over the years. As with the outside infrastructure, the inside infrastructure has inherent limits based on the type of cabling that was installed. In order to provide a uniform level of capability and service, the inside infrastructure needs to be upgraded as well as the fiber optic cable between buildings. The higher speeds will be needed to meet growing demands and for new initiatives such as Voice over IP telephony and research access to high speed computing.

Solution:
Briefly describe the product of the project that would resolve the Business Need or Problem.

Existing inside infrastructure (network wiring) in all NDSU buildings would be replaced where needed. This work will require two bienniums to complete (assuming ITS does the work) and will be good for up to 10 years (based on existing technology).

Consistency/Fit with Organization's Mission:
Describe how the project is consistent with the agency's mission and/or strategic plan. Please provide rationale if it is not.

This project is supported primarily by goals for adequacy in resources and infrastructure (#2), as well as support of efforts to increase federal funding and private research funding (#3), expanding doctoral programs (#4), and provide education excellence (#5).

Anticipated Benefits:
*List all **Anticipated Benefits** resulting directly from the project. Specify the ways there will be measurable improvement of new capabilities?*

Higher communication speeds and less errors between devices on the network. In conjunction with the upgrade of fiber optic cable between buildings this will also provide wider access to high speed data resources and support of Voice over IP telephony and video conferencing. Standardizing the wiring will also streamline service provisioning and user access.

Impact of Not Implementing the Project:
Briefly explain the impacts of not implementing this project. If not implemented, what are the impacts on the organization? If not implemented, what are the impacts on other projects, systems, and/or business processes. What benefits will be missed by not doing this project?

Deployment of new technologies such as Voice over IP telephony would be restricted to certain areas or buildings. Provisioning of network connections will be complicated by the many different capabilities available on campus. Some faculty or staff may not have access to high speed data resources.

Project Budget:

*Provide a **Budget** for the project using the format below. Include any special sources for project funding. Are there grants that will be applied for? Are federal funds available? Is a charge-back to the Customers planned? For example, the project may be funded by a specific line item in the budget.*

Project Budget Format:

The total cost for ITS to implement the upgrades is $400,000 per biennium over the next two bienniums ($800,000 total). Maintaining infrastructure is an ongoing activity and future upgrades will have to be evaluated at the time.

    A. Funding Source(s): Appropriated funds
    B. Expense Account Codes to be included are:
           581035 IT Contractual Services and Repairs
    C. Project costs not reported in the above IT related account codes (include in-kind costs). None.

Project Risks:

Identify any risks associated with implementing this project and explain how the risks will be mitigated.

Technological risk – there is always a risk that IT infrastructure will be made obsolete by newer technologies. This will be mitigated by selection of the appropriate standards at the time of installation.

Project risk – the project will be led by experienced ITS Network Services staff with a proven track record in project management and successful completion.

NDUS Project Business Case

Project Name: ___Telecommunications Audix Replacement – Modular Messaging___

Name of Contact or Submitter: ___Joan Chapek___

Institution: ___North Dakota State University___

Business Unit/Program Area: ___Telecommunications/ Business and Finance___

Type of Project: Major enhancement/upgrade

Date: ___June 12, 2006___

Version: ___1___

Project Description:

Upgrade current voice messaging system to Modular Messaging system.

Project Priority:

Telecommunications/Business and Finance Priority: 4

Business Need/Problem:

The current NDSU Telecommunications voice messaging system (Audix) was purchased in 1994, and the manufacturer's migration path is towards Modular Messaging.

Solution:

Telecommunications voice messaging software will have to be updated to Modular Messaging. Modular Messaging allows new IP messaging capabilities while preserving current messaging infrastructure and capital investments.

Consistency/Fit with Organization's Mission:

As NDSU grows, we must continually assess all areas for adequacy in resources and infrastructure.

Anticipated Benefits:

This voice messaging upgrade will support the growing demands of the campus, future initiatives, and continued Avaya support.

Impact of Not Implementing the Project:

Implementation of this upgrade requires the manufacturer to perform a campus network assessment. AVAYA will cease support of the existing system some time after 2008.

Project Budget:

   A. Funding Source(s) Telecommunications Repair and Replacement $162,867
   B. Expense Account Codes to be included are:
       i.   591100 Capitalized Repairs

Project Risks:

None.

NDUS Project Business Case

Project Name: ____Single Mode Fiber Optic Cabling_____

Name of Contact or Submitter: _____Joan Chapek_____

Institution: _____North Dakota State University_____

Business Unit/Program Area: _____Telecommunications/Business and Finance_____

Type of Project: Major enhancement/upgrade

Date: _____May 22, 2006_____

Version: _____1_____

Project Description:

Installation of single-mode fiber optic cabling to all NDSU buildings.

Project Priority:

Telecommunications/Business Finance Priority: 1
This is also the number 1 priority for ITS

Business Need/Problem:

The current NDSU outside infrastructure includes copper and multi-mode fiber optic cabling funded via dial tone rate structure. Both are still in use and have some remaining useful life. However, there are limits to the scalability of our communications infrastructure that are inherent to the existing cabling. Most NDSU campus buildings are connected for data services via multi-mode fiber optic cable. This cabling is limited to signals that support data rates of up to 100 Mbps. In order to support higher data rates of 1 or 10 Gbps, single-mode fiber optic cabling is required.

Solution:

These higher speeds of 1 or 10 Gbps will be needed to support the growing demands of the campus and for future initiatives such as Voice Over IP telephony. Therefore, we are requesting funding to install single-mode fiber optic cabling to all NDSU buildings. This work can be completed within one biennium and will be good for up to 20 years (based on existing technology).

Consistency/Fit with Organization's Mission:

As NDSU grows, we must continually assess all areas for adequacy in resources and infrastructure.

Anticipated Benefits:

These higher speeds of 1 or 10 Gbps will be needed to support the growing academic, administrative and research demands of the campus and for future initiatives such as Voice Over IP telephony.

Impact of Not Implementing the Project:

Campus needs for higher data speeds of 1 or 10 Gbps will not be met. This could negatively impact student recruitment/retention, research and administrative activities.

Project Budget:

    A. Funding Source(s): University Appropriations $250,000
    B. Expense Account Codes to be included are:
        i.   591100 Capitalized Repairs

Project Risks:

None.

NDUS Project Business Case

Project Name: Student Health Information System

Name of Contact or Submitter: Barbara Lonbaken

Institution: North Dakota State University

Business Unit/Program Area: Student Health Service/Student Affairs

Type of Project:
X   New Initiative
        Major enhancement/upgrade
        Application replacement
        Ongoing Initiative

Date: 6/7/06

Version: _____

Project Description:
Briefly describe the Project Objectives

NDSU and UND are in need of a totally integrated online health management software product for their student health service departments.

Project Priority:
Describe the priority this project has related to other projects you are submitting

ConnectND staff have put this request "on hold" until PeopleSoft is full implemented.

Business Need/Problem:
*Briefly describe the **Need** or **Problem** driving the proposed project and the identification of the Customers and anticipated Consumers of the project's product*

NDSU's current system is DOS-based, doesn't interface with other Student Health Service units (pharmacy, laboratory, etc.), is not student-friendly, and has very limited reporting capabilities.

Solution:
Briefly describe the product of the project that would resolve the Business Need or Problem.

An integrated online health management product would include scheduling and upload modules, immunization compliance tracking, electronic medical record (EMR), pharmacy and lab modules, reporting and analysis features.

Consistency/Fit with Organization's Mission:
Describe how the project is consistent with the agency's mission and/or strategic plan. Please provide rationale if it is not.

The mission of the Student Health Service (SHS) is to support the academic success of a diverse student population in an atmosphere of health and wellness through education and services. An online health management product would allow the SHS to serve students more efficiently and effectively.

Anticipated Benefits:
*List all **Anticipated Benefits** resulting directly from the project. Specify the ways there will be measurable improvement of new capabilities?*

Implementation of this project would simplify everyday office administration tasks and put student data at our fingertips, enable us to better serve student patients, more efficiently manage health center operations, and help students stay healthy and in school.

Measurable improvement would be evidenced in the following features:
- Tracking of scheduled appointments and walk-in visits
- Links to the campus system for demographic and financial information
- Tracking of immunization compliance
- Electronic medical record with provider customizable charting templates
- Tracking of pharmacy inventory and printing of prescriptions
- Interface with lab for tests and results
- Generation of reports for analysis and benchmarking purposes

Impact of Not Implementing the Project:
Briefly explain the impacts of not implementing this project. If not implemented, what are the impacts on the organization? If not implemented, what are the impacts on other projects, systems, and/or business processes. What benefits will be missed by not doing this project?

If the project is not implemented, the SHS will continue to serve students with the current, out-dated, DOS-based system. This system doesn't allow the SHS to serve students quickly and efficiently; requires more manual effort; operates off hard copy materials; slows down the referral process; and doesn't produce reports needed for planning and budgeting purposes.

Project Budget:
*Provide a **Budget** for the project using the format below. Include any special sources for project funding. Are there grants that will be applied for? Are federal funds available? Is*

Project Budget Format:

   A. Funding Source(s):   Student Health Service fee

   B. Expense Account Codes to be included are:
       i.   510000 Salaries and Wages
      ii.   516000 Benefits
     iii.   611000 Professional Development
     iv.   521000 Travel
      v.   602000 IT Telephone
     vi.   531000 IT Software/Supplies
    vii.   581035, 581040, 581045, 591070, 621230, 621235, 623090 IT Contractual Services and Repairs
   viii.   551000 IT Equipment under $5000
     ix.   693000 IT Equipment $5000 and over

   C. Project costs not reported in the above IT related account codes (include in-kind costs).
      $250,000-$500,000 for hardware and network infrastructure, software licenses, project management & training. Additional/on-going expenses will include periodic staff training, annual updates, host server costs, equipment [printers], etc.

Project Risks:

Possible risks are those that accompany a change in information systems…an initial work slowdown as staff are trained and convert from one system to another, connecting with the university system for demographic and financial information, and unpredicted expenses.

The risks will be mitigated by developing a detailed plan for implementation with the appropriate parties, working with consultants knowledgeable of the process, and educating all staff, students, and departments involved throughout the process.